DOCKET FILE COPY ORIGINAL

RECEIVED
SEP 24 1997
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
	)	
Forward-Looking Mechanism for High Cost Support for Non-Rural LECs	)	CC Docket No. 97-160

COMMENTS OF
ALIANT COMMUNICATIONS CO.

Robert A. Mazer
Albert Shuldiner
Allison S. Yamamoto
Vinson & Elkins L.L.P.
1455 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-1008
(202) 639-6755
Counsel for Aliant Communications Co.

September 24, 1997

COMMENTS OF
ALIANT COMMUNICATIONS CO.

TABLE OF CONTENTS

III.C.2.b.	**Installation and Cable Cost**	**1**
III.C.2.d.	**Structure Sharing**	**2**
III.C.2.e.	**Loop Design**	**2**
III.C.2.f.	**Wireless Thresholds**	**6**
III.C.2.g.	**Miscellaneous Outside Plant Issues**	**7**

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Federal-State Joint Board on Universal Service	))	CC Docket No. 96-45
	)	
Forward-Looking Mechanism for High Cost Support for Non-Rural LECs	)))	CC Docket No. 97-160

COMMENTS
OF
ALIANT COMMUNICATIONS CO.

Aliant Communications Company ("Aliant"), by its attorneys, hereby submits additional comments in the above-captioned proceedings.[1] These comments address the design of the outside plant investment components (III.C.2. Platform) of forward looking economic cost models as requested in the comment submission schedule of the Commission's Further Notice of Proposed Rulemaking ("FNPRM"). In order to facilitate the Commission's consideration of these comments, Aliant references the particular sections of the Commission's FNPRM to which they relate.

III.C.2.b Installation and Cable Cost

Aliant agrees with the Commission that the density zones should reflect the number of lines per square mile. Aliant also agrees that too many density zones can make data calculations too

---

1 *Federal-State Joint Board on Universal Service*, CC Docket No. 96-45 and *Forward-Looking Mechanism for High Cost Support for Non-Rural LECs*, CC Docket No. 97-160, FCC No. 97-256, *Further Notice of Proposed Rulemaking* (July 18, 1997).

complex. The Hatfield density zone of 650-850 seems to be too definitive. The density zones between the two models could be compromised by changing the BCPM 5,000+ zone to a 5,000 –10,000 zone, adding a 10,000+ zone to the BCPM and deleting the 650 – 850 zone from the Hatfield.

III.C.2.d Structure Sharing

Aliant believes that sharing levels will vary according to the density zones and will also vary by the type of installation activity (*i.e.*, trench vs. plow). As such, Aliant recommends the selected mechanism should include allowing for different sharing levels by density zone, structure type (buried, aerial, UG) and installation activity. For example, in a lower density zone, the electric utility placement of poles may be such that telecommunications service providers may require placement of non-joint (non-shared) inter-set poles. This would also have an impact on the determination of sharing levels by density zone.

III.C.2.e Loop Design

1) Fiber-Copper Cross-over Point

There are many factors that must be taken into consideration in the model's network architectural design. The primary factor the model must incorporate into the network design will be consideration for the highest level of service that this network must support. If the model employs a reasonable, least-cost, and most efficient technology for providing "supported services," the provisioning of advanced services may be impeded, which is contrary to the Commission's stated intentions. The least cost method would almost certainly be based on a design including loading coils, which would restrict the delivery of advanced services.

The reliability of a proxy model to reflect loop cost relies upon the accuracy of the location of the customers served by the model's network. This is especially true in the lower density rural areas that deploy the longer high cost loops. If the model utilizes a clustering approach and aggregates these remote lines into one location and deploys a fiber fed digital loop carrier (DLC) to serve this cluster, the model will then be an oversimplification of a rural loop and will not represent an actual network required to deliver services. In order to accurately reflect loop cost, the model must represent a network that will actually be capable of delivering services to these remote low-density areas.

Aliant believes the model should develop a network that is viable from both a technological and economic perspective. It has been Aliant's experience that the fiber-copper crossover is in the 9,000 - 12,000 foot range from an economic perspective in most cases. The fiber-copper cross-over point should reflect a true economic cross-over for copper to fiber and not just a function of the model's technological architecture. A model that accurately reflects an economic cross-over for POTS would also be able to be utilized in projecting the cost of provisioning the network for advanced services.[2]

---

2 Bi-directional T1 (1.544 Mbs) provisioned on HDSL is restricted to a loop of 9,000 feet of 26 gauge cable or 12,000 feet of 24 gauge cable.

2) Loop Standards

The existing urban network loop infrastructure was built employing a wire center design[3] utilizing the Revised Resistance Design (RRD) standard. This design restricts the use of loading coils in urban areas. During the past several years Carrier Serving Area (CSA) Standards have been deployed, replacing the RRD standard, for both economic and technical reasons.[4] In most urban designs, the CSA size is based on the maximum number of lines that can be economically deployed, not the maximum loop lengths within the CSA. The adoption of either the RRD or the CSA standard would be an issue only in the long loop, lower density non-urban areas. The primary determinant of the network design, as noted in the preceding section, will be contingent on the services that the network will be required to deliver. Thus, Aliant recommends adopting a performance standard (level of service and economic provision) in lieu of a loop standard such as the RRD or CSA.

3) Digital Loop Carrier

DLCs are essentially modular by design and are therefore scaleable. The physical sizing of a DLC is determined by the number of modules that can be installed in a standard DLC housing. Larger cabinets, or housings, are available for multiple DLCs at a single location, but this can require a significant additional investment in housing and site preparation. DLC sizing is also dependent

---

3 Urban wire center locations were relative to each other such that the longest loop extending from each wire center did not exceed 18,000 feet.

4 This allows for a more seamless deployment of advanced services.

on the cost of the distribution network where, in medium density areas, multiple smaller DLCs may be more cost efficient than one large DLC. Larger DLCs could require the construction of a more extensive heavier gauge copper distribution network along with its more expensive support structure.

A smaller DLC system, or a fiber-copper distribution network such as E/O Network's Fiber Distribution System FDS-1[tm], which is designed primarily for rural and low density service areas, may be beneficial to include in the model design. This would permit the model to construct a network that would not impede the provisioning of advanced services in low density rural areas--but at a potentially higher cost.

DLC cost can fluctuate significantly from company to company due to several factors, but the primary pricing factor is a function of volume purchases. Larger companies can therefore have a substantially lower investment per DLC site than a smaller company. The model needs to take this pricing variance into consideration by allowing input of the major pricing variables in a DLC cost.[5]

The lowest cost application of the traditional Resistive Design methodology would not place loop electronics on loops over 18,000 feet, because placement of loading coils in these loops is a lower cost method of delivering POTS. A forward looking network design, in the lower density zones, that eliminates the loading coil by placing loop electronics may have a lower cost than placing multiple smaller DLCs. Loop electronics extends the range of delivering POTS, but may also

---

5 Examples include: Initial Common Equipment cost, Channel cost, Common Equipment cost for line additions and site-housing-power costs.

require additional investment in new technology loop electronics for deploying advanced services. Use of traditional Central Office loop electronics to extend the range of the POTS loop may even restrict or prohibit the deployment of advanced services. New products are available, such as GoDigital Telecommunication's GDSL[tm] systems, that provide pair gain along with extending the reach of a non-loaded copper loop. Extension of the loop is accomplished by the addition of line powered mid-span repeaters. The GoDigital systems will also support a basic rate ISDN line by the use of repeaters over a limited range. Future product development may provide a solution to allow extending the limits of these systems to reach all low density, long loop lines. The model needs to be flexible to allow for the incorporation of loop electronics especially if the delivery of advanced services is not to be impeded.

III.C.2.f Wireless Thresholds

The inclusion of wireless service in the model would add significant complexity if it is to be accurate. Wireless service has distinct characteristics which make it essentially different from wired service. Any wireless service has the need for some form of local power whereas wired service has carrier supplied power. This impacts the reliability and cost characteristics of wireless service. In addition, various forms of interference, such as weather, can affect wireless services. At this state of the technology, wireless cannot support the same bandwidth as wired-- and may never be able to do so. Trying to add the complexity of wireless service will make the completion of the development of a universal service model much more difficult, since the differing characteristics must be accounted for in some way.

III.C.2.g Miscellaneous Outside Plant Issues

1) Manholes

The range of calculated manhole cost for the Hatfield and BCPM models may be similar, but the variable inputs under which these models construct a manhole are completely different. BCPM's primary variable is manhole size, constructing a larger manhole when the model dictates a larger conduit system. This increases the BCPM material cost but does not correspondingly increase labor cost. The BCPM labor is also not affected by density zone, which would imply the same labor cost (time required) to construct a manhole in a rural area as in a high density urban area. The Hatfield model allows for varying labor rates by density zone, but does not allow for the difference in material cost of constructing larger manholes required by larger conduit systems. Aliant thus recommends that the model allow for the variable input of labor by density zone and the variable input of material cost by size of conduit system the model will construct.

2) Poles, Anchors, Guys, Aerial Cable, and Building Attachments

The labor and material cost of placing anchors and guys can have an impact on the structure cost of building aerial plant. Aliant recommends that anchor/guy material and labor cost should be identified as separate inputs into the model, as in BCPM. The percentage of poles that require an anchor/guy would also be a required input and will also vary by density zone.

Aliant further recommends that pole spacing should remain as a variable input and defined by density zone. Rural aerial systems generally have longer spans than urban pole lines and also have minimal redirection of the alignment. Urban systems will require setting more poles in a given distance due to misaligned property lines, redirecting lines because of ROW issues, overhead extensions[6], etc. In urban areas served by joint utility poles, the pole spacing will be closer due to the restriction of the power utility from overhanging adjacent property with a service line.

The labor cost associated with installation of cable in a building riser is also much higher on a "installed cost per foot" basis than constructing aerial cable on poles. Aliant therefore recommends having an input to identify placement of cable in a riser system.

3) Network Interface Device (NID)

The National Electric Code (NEC), at paragraphs 800-830, requires that each circuit that can potentially be exposed to electric or power conductors over 300 volts must have a primary protector. This is required regardless of the working status of the pair.

A residential drop is connected to the distribution cable only when service is required, therefore separating the cost of the protector from the NID and assuming one set of protectors for

---

6 Extending cable messenger and placing pole/anchor/guy in a separate location from the cable termination.

each line in service is valid.[7] Multi-line business terminals are installed in standard sizes and are traditionally spliced into the distribution cable. The Code would then require all circuits terminated in the terminal to have protection regardless of the number of lines working. Aliant therefore agrees that there should be a distinct and separate input for a residential NID and a business NID.

4) Serving Area Interface (SAI)

The cable that is placed into a building requiring an indoor SAI will be spliced into an existing distribution cable or it will be a distribution cable extending from a feeder cable. This cable will be sized by a corresponding distribution fill factor. As stated earlier, the NEC requires all the pairs that are terminated, including spares, have protection within this building. The cost associated with placing an indoor SAI will therefore be different than the cost of placing a similarly sized outdoor SAI. Aliant therefore agrees with the Commission that the selected mechanism should include the cost of a SAI for various cable sizes and should also allow for the difference in cost for an indoor SAI and an outdoor SAI.

---

7 A service drop is usually not exposed to voltages over 300 volts, whereas distribution cable are exposed to voltages greater than 300 volts.

Aliant urges the Commission to adopt the suggestions contained herein.

Respectfully submitted,

Robert A. Mazer
Albert Shuldiner
Allison S. Yamamoto
Vinson & Elkins L.L.P.
1455 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-1008
(202) 639-6755
Counsel for Aliant Communications Co.

September 24, 1997

CERTIFICATE OF SERVICE

I hereby certify that a copy of the attached comments of Aliant Communications Co. was served by first class U.S. mail, postage prepaid, on the parties of record in this proceeding.